ONTARIO MINISTRY OF ENVIRONMENT
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THE

ONTARIO WATER RESOURCES

COMMISSION

WATER POLLUTION SURVEY

OF THE

TOWN OF PORT HOPE

1964

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The Ontario Water Resources Commission

Report

on

Water Pollution Survey

# of the

Town of Port Hope

June 1964

Water Pollution Survey
Town of Port Hope

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INTRODUCTION

A water pollution survey of the Town of Port Hope was performed on June 1, and 2, 1964, in response to a petition which alleged pollution of the Ganaraska River in the area of the town. Surveys of this type are made by the Ontario Water Resources Commission for the purpose of locating and recording sources of existing and potential water pollution. Recommendations pertaining to the abatement of these sources are made to the parties concerned. A similar survey was performed during 1958.

It is noted that the comments in this report pertain to conditions as they existed at the time of the survey.

PERSONS INTERVIEWED

The following officials were contacted:

Mr. W. E. Hunt, Municipal Clerk;
Mr. B. Spicer, Chairman, Sewage Treatment Plant & Sanitary Sewers Committee.

TOWN OF PORT HOPE

General

Situated on the shores of Lake Ontario, Port Hope lies in the County of Durham, near the Northumberland-Durham County Line. According to the 1964 Municipal Directory, the assessed population is 8,154.

Drainage

Drainage for the town is provided by the Ganaraska

River as well as Lake Ontario. The Ganaraska River rises in the Townships of Clark and Hope and flows for some twenty miles to its confluence with Lake Ontario at Port Hope.

Water Supply

Water is drawn from Lake Ontario and is provided by the municipal water works system. Treatment consists of settling, filtration and chlorination. The design capacity of the treatment plant is approximately 1.25 million gallons per day.

Sewer System

Sanitary wastes and some industrial wastes are conducted to the municipal sewage treatment plant by the sanitary sewer system. Storm water discharges to the storm sewers which terminate at the Ganaraska River.

Due to instances of surface runoff flows such as roof waters or catch basins being connected to the sanitary sewers, the volume of waste is considerably and unnecessarily increased. Conversely there are instances where sanitary sewers have relief overflow connections to storm sewers which discharge to the Ganaraska River. Particularly noted is the sanitary sewer on Mill Street which may overflow at two locations to a storm sewer which discharges to the north bank of the river just east of Ontario Street. An additional overflow may occur through an outlet on the east bank of the

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river just north of Walton Street.

Sewage Treatment Facilities

The municipal sewage treatment plant uses the activated sludge process and has a design capacity of one million gallons per day. The plant effluent is discharged to Lake Ontario. An emergency by-pass arrangement permits the discharge of raw sewage to the lake as well.

The plant may become overloaded in the spring and during other periods of high precipitation due to the aforementioned connections to the sanitary sewer from roof drains and storm water catch basins.

Industry

The following principal industries are located in the Town of Port Hope.

Name of Firm	Product
Agricultural-Chemicals Ltd.	Fertilizers
A. M. F. Atomics (Canada) Ltd.	Nuclear Fuel Rods
Arbo Leather Company	Leather Goods
Bookcraft Limited	Commercial Art
Cosmos Chemicals Ltd.	Lacquers, Finishes, etc.
Crane (Canada) Ltd.	Bathroom Fixtures, Plumbing
Dunham-Bush of Canada	Air Compressors, Condensers
Dynaflex Company Ltd.	Polyethelene
Eldorado Mining and Refining Ltd.	Uranium Products
B. Elliot (Canada) Ltd.	Machine Tools
Esco Limited	Heavy Machinery
Ganaraska Valley Products	Metal & Plastic Printing Plates
Glosta Mfg. Company Ltd.	Sheet Metal
Hood Knitting Company	Knitted Goods
Joice-Sweanor Electric Ltd.	Major Electrical Contractors
Kennedy Upholstering	Furniture

Name of Firm	Product
Mathews Conveyor Company Ltd.	Conveyor Equipment
Nicholson File Co. of Canada Ltd.	Files
Rutter Granite	Building Monuments
Stein Packers	Pet Foods

Prior to this year, the Arbo Leather Company had been a source of pollution to the Ganaraska River. However, this firm has recently moved to a new location and waste disposal is effected by means of the sanitary sewers and a separate disposal unit located at the sewage treatment plant.

Due to a recent fire, the operation at the Cosmos Chemical Company is limited at the present time. There is no apparent industrial waste discharge from this firm.

Special arrangements are made for industrial waste disposal at the Eldorado Mining and Refining Limited plant. These are under review.

Recreation

Minimal use is made of the Ganaraska River for swimming purposes within the town.

SAMPLING PROCEDURE

Samples were collected from the Ganaraska River and from evident discharges to the watercourse. Bacteriological examination and sanitary chemical analysis were performed at the Ontario Water Resources laboratory in Toronto. The sample results are recorded in the appendix to this report. A map of the Town of Port Hope showing the

sampling point locations is also appended. Sunny weather prevailed during the sampling period.

INTERPRETATION AND SIGNIFICANCE OF LABORATORY RESULTS

The analyses employed in this investigation to assess the quality of outfall discharges and surface waters where biochemical oxygen demand (BOD), suspended solids, and the total coliform count.

The BOD of sewage, industrial wastes or polluted waters, is the oxygen required during stabilization (natural purification in the stream) of the decomposable organic material by aerobic chemical action. A 5-day BOD determination with incubation at 20° C is reported. A high BOD is indicative of organic or chemical pollution. A desirable upper limit in surface water is four (4) parts per million (ppm).

Suspended solids are reported in parts per million and indicate the measure of undissolved solids of organic or inorganic nature.

The total coliform count is employed to obtain an enumeration of coliform organisms, and the number is reported per 100 millilitres (ml) of the sample. The membrane filter technique was used in the examination of these samples. The maximum limit of 2400 coliform organisms per 100 ml. is the OWRC objective for the bacteriological quality of surface water in Ontario.

Listed below are some of the pertinent maximum allowable concentration limits of contaminants in storm sewer, sewage treatment plant, and industrial waste discharges. Adequate protection for surface waters, except in certain specific instances influenced by local conditions, should be provided if the following concentrations and pH range are not exceeded.

5-Day BOD	15 ppm
Suspended solids	15 ppm
Phenol	20 ppb
Iron	17 ppm
Oil (ether solubles)	15 ppm
pH range	5.5 to 10.6

SAMPLE RESULTS

The sample results indicate a satisfactory condition with respect to the sanitary quality of the waters in the upstream section of the Ganaraska River. As it passes through the town, an increase in the coliform content which approaches the Commission objective for water quality is apparent. It is noted that during the middle of the summer when stream flow is at a minimum, these counts could be notably increased due to the reduced assimilation abilities of the stream.

POLLUTION SOURCES

On the basis of the sample results, the presence of sanitary wastes is indicated in the following storm sewer discharges to the Ganaraska River.

Sample Point No. GA-0.4-W-2: A submerged outlet to the west side of the river just below Peter Street - vicinity sample collected at this point.

Sample Point No. GA-0.9-W: Storm sewer discharge to north bank - east side of Ontario Street Overflow from Mill Street sanitary sewer.

Sample Point No. GA-1.3-W: Storm sewer discharge to west bank approximately 500 feet north of North Street.

A BOD value in excess of Commission objectives was noted in the sample collected from the ditch which discharges to the bank on the south side of Barrett Street.

SUMMARY

The main sources of water pollution within the Town of Port Hope would appear to be three storm sewers which discharge to the Ganaraska River.

Commendable progress has been made in the elimination of pollution by industrial wastes.

RECOMMENDATION

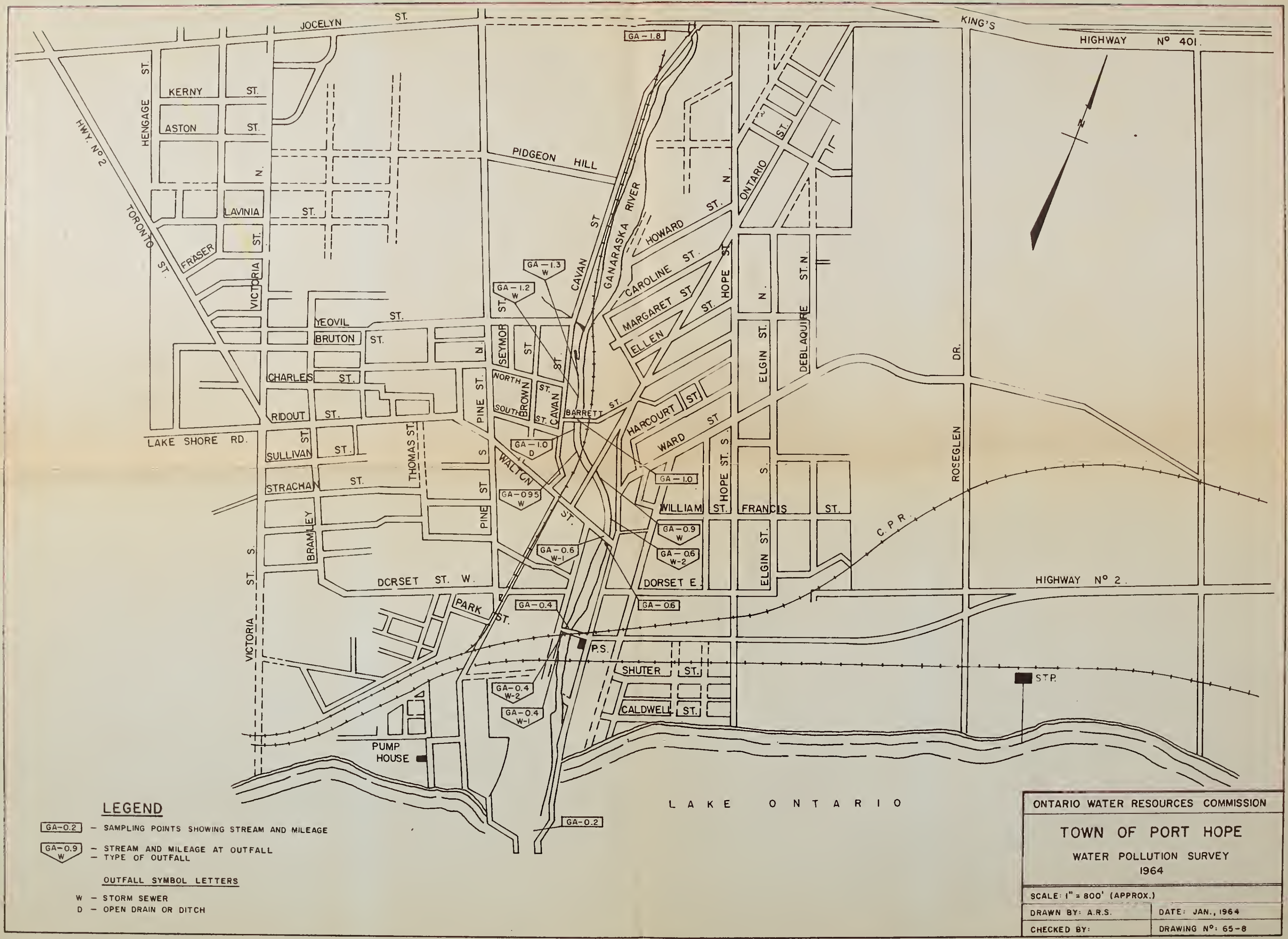
An overall programme to eliminate the interconnections between the sanitary and storm sewer systems should be undertaken by the officials of the Town of Port Hope.

All of which is respectfully submitted,

District Engineer: ____________________
J. K. Theil

Approved by: ____________________
K. H. Sharpe, Director

Sample Point Number	Description of Sampling Points	5-Day BOD (ppm)	SOLIDS Total	SOLIDS Susp.	SOLIDS Diss	Total Coliforms per 100 ml.
GA-0.2	Ganaraska River mouth - docks in Port Hope	1.3	202	7	195	2,200
GA-0.4-W-1	Culvert to west bank from low area	0.3	426	5	421	2,900
GA-0.4-W-2	Storm sewer to west bank just below Peter Street- vicinity sample	78	456	116	340	130,000,000
GA-0.4	Ganaraska River at Peter Street	0.9	224	9	215	2,200
GA-0.6	Ganaraska River at Walton Street	1.1	216	12	204	1,100
GA-0.6-W-1	Storm sewer to west bank under Walton Street bridge	no flow				
GA-0.6-W-2	Storm sewer to east bank just north of Walton Street bridge	no flow				
GA-0.9-W	Storm sewer to north bank -east side of Ontario Street	36	584	94	490	21,000,000
GA-0.95-W	Drain to west bank south of Barrett Street	no flow				
GA-1.0-D	Ditch to west bank- south side of Barrett Street bridge	23	584	31	553	730
GA-1.0	Ganaraska River at Barrett Street	1.0	216	6	210	1,500
GA-1.2-W	Storm sewer to west bank just south of North Street	no flow				
GA-1.3-W	Storm sewer to west bank 500 feet north of North Street	70	706	100	606	1,370,000,000
GA-1.8	Ganaraska River at Cavan Street North	0.9	228	7	221	54



LEGEND

GA-0.2 – SAMPLING POINTS SHOWING STREAM AND MILEAGE

GA-0.9 W – STREAM AND MILEAGE AT OUTFALL – TYPE OF OUTFALL

OUTFALL SYMBOL LETTERS

W – STORM SEWER
D – OPEN DRAIN OR DITCH

ONTARIO WATER RESOURCES COMMISSION

TOWN OF PORT HOPE

WATER POLLUTION SURVEY
1964

SCALE: 1" = 800' (APPROX.)
DRAWN BY: A.R.S.
DATE: JAN., 1964
CHECKED BY:
DRAWING Nº: 65-8